REMARKS

The Office Action dated May 11, 2006 has been carefully considered. Claims-2-9, 23, 26, 33-35, and 45-48 are allowed. Claims 10-13, 16-18, 22, 27-30, 36, 39, 42, 44-46 and 48 have been amended. No new matter has been entered. The amendment to claim 10 is supported by paragraphs 310, 5 and 7 and Fig. 15. The amendment to claims 11-13 are supported by paragraph 331. The amendment to claims 36 and 39 is supported by paragraph 75. The amendment to claim 42 is supported by paragraphs 78 and 94. The amendments to insert "non-homoserine lactone" autoinducer-2 are supported by paragraphs 5-7, 114 and fig. 15.

CLAIM OBJECTIONS

Claims 40, 41 and 44 were objected to as being dependent upon a rejected base claim. It is believed that the present amendments to claims 39 and 42 will entrain the withdrawal of the rejections to the base claims and moot the claim objections. However, if the base claims are still found to be unpatentable, claims 40, 41 and 44 will be amended to be independent of the base claims.

DOUBLE PATENTING

Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,559,176.

Claim 10 is also rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,936,435. Although the Office Action states that this is a rejection of claim 1, this is inconsistent with the last office action of October 14, 2005, and in a phone call, the examiner clarified that this is supposed to be a rejection of claim 10 over claim 1 of the '435 patent.

In order to advance prosecution of the application and without acquiescing to the rejections, Applicants agree to file a terminal disclaimer when the claims are in final form for allowance, if the double patenting rejection is maintained at that time.

35 U.S.C. § 112 SECOND PARAGRAPH

Claims 10-18, 36, 39, 42 and 43 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner's comments have been carefully considered and claims 10-13, 36, 39 and 42 have been amended so that the claim recitals are definite. Therefore, the dependent claims that incorporate the language of the independent claims are also definite. Applicants respectfully request that the rejections be withdrawn.

35 U.S.C. § 102

Claims 10-22, 24-25, and 27-32 were rejected under 35 U.S.C. § 102(b) as being anticipated by Kuo et al. Applicant traverses the rejection.

Kuo et al. teach modulation of luminescence operon expression by an autoinducer which Kuo et al. have dubbed AI-2 and which Kuo et al teaches is different from the V. fischeri N-3-oxohexanoyl-L-homoserine lactone, they call AI-1. However, the autoinducer that Kuo et al. dubbed AI-2 is nonetheless a homoserine lactone. Specifically, the autoinducer dubbed AI-2 by Kuo et al. is N-Octanoyl-L-homoserine lactone (*see* Abstract).

The octanoyl-HSL autoinducer that is the subject of the Kuo et al. reference is from a different structural class than the autoinducer-2 of the presently claimed invention (disclosed in Fig. 15 of this application). Unfortunately and confusingly, both the Kuo et al. autoinducer and the instantly-claimed autoinducer are referred to by the same "AI-2" designation. Therefore, in order to clarify that the autoinducer-2 of the claimed invention is of a different structural class, as illustrated in Figure 15, amendments have been made to the claims at issue to refer to "the non-homoserine lactone autoinducer-2". The amendment is reflective of the disclosure of the present application.

The present specification supports the amended claims and clarifies that the AI-2 of the invention is different from any previously described autoinducer (paragraph 114). Still further, the present specification clarifies that some bacteria have two independent density-sensing systems (see para. 5-7), Signaling System 1 using sensor 1 which binds the homoserine lactone autoinducer-1 (AI-1) versus Signaling System 2 using sensor 2 which binds the autoinducer-2 (AI-2) whose structure is represented in Figure 15 of the application.

In comparing the Kuo et al. reference to the amended claims, the distinction between the two systems is clear. The claims require a bacterial cell or extract thereof that is capable of producing a detectable amount of light in response to the non-homoserine lactone autoinducer-2; then the bacterial cell or extract must be contacted with an analog of the non-homoserine lactone autoinducer-2. Kuo et al. never contact their cells with an analog of a non-homoserine lactone autoinducer. Kuo et al. contact the cells only with homoserine lactones, specifically, with N-Octanoyl-L-homoserine lactone (Abstract) or, in the case of MJ-1 and the endogenous contact, with N-3-oxohexanoyl-L-homoserine lactone. Since Kuo et al. does not show a method wherein bacterial cells are contacted with an analog of a non-homoserine lactone autoinducer, Kuo et al. does not teach a method having each of the limitations of the claimed method.

Since the dependent claims incorporate all the limitations of the independent claims from which they depend, all of claims 10-22, 24-25, and 27-32 have limitations that are not taught or suggested in the prior art. For this reason, the claims are novel. Applicant respectfully requests that the rejection be withdrawn.

35 U.S.C. § 103

Claims 42 and 43 were rejected under 35 U.S.C. § 103 as being unpatentable over Kuo et al. Applicant traverses the rejection.

Claims 42 and 43 have been amended to clarify that the method is directed to determining binding between a non-homoserine lactone autoinducer-2 and its receptor. The reasoning supporting this amendment is explained above with reference to the § 102 rejection, and is incorporated herein.

The claim 42 method for identifying a compound that regulates binding of non-homoserine lactone autoinducer-2 to the non-homoserine lactone autoinducer-2 receptor, requires, first, contacting non-homoserine lactone autoinducer-2 and the receptor with the compound. Kuo et al. do not conduct such a preliminary step where a potential regulator compound is first brought into contact with non-homoserine lactone autoinducer-2 and its receptor and then the product of that preliminary contact is contacted with a cell or cell extract capable of producing light in response to non-homoserine lactone autoinducer-2 binding to its receptor.

The Examiner analyzed the method of claim 42 as though it contained the same steps as claim 10, analyzed above in reference to the § 102 rejection. The Examiner did not pay any heed to the reversed order of the contacting in the method of claim 42. By taking into account the order of the steps of claim 42, it is apparent that Kuo et al. do not teach any method wherein contacting of the autoinducer and its receptor with a potential regulating compound is first conducted and then contact is made with a cell or cell extract as recited in claim 42. Since Kuo et al. do not teach the method of claim 42, neither in the order of the steps, nor in testing for a compound that regulates the binding of non-homoserine lactone autoinducer-2 to its receptor, Kuo et al. do not render the claim obvious. For this reason Applicant respectfully requests that the rejection of claims 42 and 43 be withdrawn.

In view of the foregoing, Applicants submit that all pending claims are in condition for allowance and request that all claims be allowed. The Examiner is invited to contact the undersigned should he believe that this would expedite prosecution of this application. It is believed that no fee is required. The Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-2165.

Respectfully submitted,

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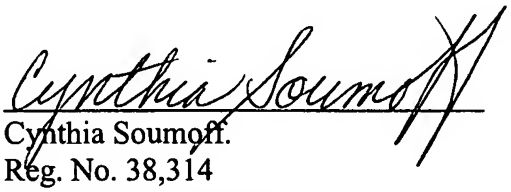

Cynthia Soumoff.
Reg. No. 38,314
Attorney for Applicant

MATHEWS, SHEPHERD, McKAY & BRUNEAU, P.A.
100 Thanet Circle, Suite 306
Princeton, NJ 08540
Tel: 609 924 8555
Fax: 609 924 3036